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AUTHOR Gallagher, James J.
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ABSTRACT

Presented at the Educational Testing Service's Invitational Conference on Measurement and Educational Policy in 1978, the paper discusses some critical measurement issues that influence the future course of education for the gifted. The current status of gifted education is reviewed, and the gifted population is defined as those with demonstrated achievement and/or potential in any of the following areas: general intellectual ability, specific academic aptitude, creative or productive thinking, leadership ability, visual and performing arts, and psychomotor ability. Specific measurement problems discussed include cultural differences and creativity measurement. Some areas for school adaptations for gifted children are examined, including curriculum content and learning environment. Among the recommendations presented are the need to discard standard instruments designed for average students and to develop instruments for special populations, and the need for a new set of instruments that will allow professionals to integrate the knowledge of the individual with the classification of common environmental settings and conditions. (DLS)

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MEASUREMENT ISSUES IN FUTURE PROGRAMS FOR GIFTED STUDENTS

James J. Gallagher, Director
Frank Porter Graham Child Development Center
Kenan Professor, School of Education
University of North Carolina - Chapel Hill

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This paper intends to present some critical measurement issues that influence the future course of education for the gifted. Of course, the future shape of education of gifted and talented children in the United States depends on a number of factors:

A. The ability of educators to conceptualize the special needs and program adaptations for these children.

B. The ability to demonstrate and evaluate meaningful progress in special programs for the gifted.

C. What else is happening in the rest of the educational system (i.e., desegregation, accountability, etc.).

D. The attitude of the general public to the desirability and importance of special education for the gifted.

What each community, and the collective American society, decide to do about providing special educational experiences for gifted children probably depends more on societal attitudes and values than on educational innovations. Gallagher (1976) identified four such broad forces alive in the society that have influenced action in the past.

1. Egalitarianism. There is a strong belief in the need to give all citizens equal treatment and equal opportunity, and a related determination that there be no "special privileges for special people." Such attitudes, narrowly applied, can hinder special provisions for gifted children, especially since "equal education" often gets translated into "identical education."

2. Universal education. The commitment of the United States to full education for all children through high school has retained many children of limited ability in school.

That situation has created a range of talents and achievement at junior and senior high school ages that is difficult to manage within a single classroom. Much of the pressure for special provisions for the gifted is a recognition of such extraordinary student diversity and the problems it creates for the conscientious teacher.

3. Decentralization of educational decision making. When each separate school district makes its own major educational decisions, the need for special education for the gifted does not seem as pressing as other more immediate needs. There is greater opportunity for taking a longer-range societal perspective at the state and Federal levels. The program stimulus for the gifted often comes from those levels of government.
4. Sense of societal confidence. As long as there is overconfidence in the ability of the United States to conquer any obstacle or solve any problem as it arises--to muddle through, if necessary--then the pressure to provide special educational help for the talented is quite low. When some of that overconfidence is lost, then there is increased pressure to build programs that would enhance the education of the most talented students in the society.

Gifted education has profited, ironically, by World War II, the Sputnik crisis and the current problems of energy, population pollution,

and international conflict. Recognition of the social forces that influence or determine our education policies is the first step toward understanding the otherwise curious reluctance of the society to do more for the gifted student.

In the long history of Western man, we have honored many gifted individuals who have provided us with a new perception of mankind and his environment. Plato, Mendel, Copernicus, Freud, Darwin, Curie, Shakespeare, Bronte, and Piaget have all shown us a different portrait of ourselves and our world. That changed portrait of mankind, in turn, has resulted in major transformations in our society and civilization.

We often do not recognize that below this level of genius there are layers of lesser gifted and talented individuals who are making significant, although less society shaking contributions than the giants noted above. The scientific discoveries, the creative writing, the art and music that this second echelon of gifted individuals have produced have also played a major role in changing the total fabric of our civilization.

To ignore the education of these gifted and talented individuals is to cheat both them and the larger society of its true potential. Yet we hesitate about considering special education provisions for gifted and talented children and listen to counsel that suggests that the gifted will make their contributions without any special educational aid or help.

A strong case can be made for the presence in the American society of a love-hate relationship with giftedness and talent. On one hand

we revere the gifted individual who has risen from humble background. We are proud to live in a society where talent can triumph over environment or family status.

At the same time, since our origins came from battling an aristocratic elite, we are suspicious of attempts to subvert our commitment to egalitarianism. We do not wish a new elite class to develop and, as a result, we waver in our attitudes. We design our elementary and secondary programs for gifted students in ways that can be defended by cautious administrators as giving no special favors, no tipping the scales in favor of the societal powerful or specially endowed (Gardner, 1961).

Sometimes satire is the best way to illustrate our ambiguous positions. Kurt Vonnegut, Jr. (1950) has carried one of the common feelings about the gifted in our society to a logical conclusion in a short story entitled Harrison Bergeron set in some future society.

> The year was 2081, and everybody was finally equal. They weren't only equal before God and the law, they were equal in every which way. Nobody was smarter than anybody. No one was better looking than anybody else.

The reason for this enforced equality was that people who were outstanding in various ways were given handicaps to equalize the society. There was a government agency headed by the Handicapper General whose job it was to enforce such equality. Those citizens that could dance well had to wear sandbags on their feet, those who were strikingly good looking would have to wear a mask so as not to embarrass those who did not have those characteristics. And those with high intellectual ability?

> George, while his intelligence was way above normal, had a little mental handicap radio in his ear. He was required by law to wear it at all times. He was tuned into a government transmitter. Every twenty seconds or so, the transmitter would send out some noise to keep people like George from taking unfair advantage of their brains (p. 7).

This essentially destructive approach to "equality" does not really pass until we reach higher education when a miraculous transformation takes place.

The United States has created the most complex and extensive higher education and professional school establishment in the world. We don't call the Stanford Medical School or the Harvard Law School programs for gifted students but we know that they are, and no apologies are made that only the "best" students should be allowed to attend. After all, some of us may need a good lawyer from time to time, others may need an excellent surgeon, others would like to get some good advice from a competent psychiatrist.

Current Status of Gifted Education

The history of support for programs for exceptional children in the U. S. Office of Education gives us some insight into the cultural problems of the gifted and talented in our society. The Federal government will provide over 900 million dollars in Fiscal Year'79 to improve the education of school-aged handicapped children. These dollars are certainly needed and do not provide all that the handicapped children need in required special education services. During that same year, the Federal government will provide slightly over 3 million for the gifted and

talented. In short, for every dollar spent on a gifted child for special education, 100 dollars is spent on a handicapped child.

Is this the appropriate ratio of expenditure for exceptional children in our society? Probably not. It does represent, however, the political realities given our present system of crisis decision making in government. The gifted children suffer from the problem that they are a "cool" or long-range problem. Budget and legislative decisions are made, not on the basis of what might be the ultimate benefits for society, but rather on what is the greatest immediate crisis, or what represents the largest political pressure group. While the gifted children may be our best long-range investment in education, they do not create immediate problems of significance, nor have they had the vocal constituency to gain the attention and dollars that such constituencies can extract from public policy makers.

Mitchell and Erickson (1978) report from a national survey on current policies, resources, and services that the "national picture" of educational programs for gifted and talented children and youth in 1976-77 is slightly better than it was in 1971-72.

> More students are being identified and served.
>
> More states have statutes and policy documents.
>
> More money is being allocated.
>
> More personnel are being assigned to work in this area.
>
> More training is available.

They concluded however:

> Despite the fact there is "more of everything" now than there was in 1972, the data gathered

> in this survey emphatically demonstrates that the United States still falls far short of meeting the educational needs of this special segment of its population (p. 13).

The Federal entrance into the issue of educating the gifted and talented, though modest in its fiscal effect, did modify and extend the generally accepted definition of the gifted child.

Who Are the Gifted?

Each culture tends to define giftedness in its own image, and the definition tells us something about that culture, as well as fixes the nature of the gifted individual in that culture. What would be called "gifted" in a primitive society may be very different from that we would honor in our advanced technological society. Other cultures such as ancient Greece honored the orator, while Rome valued the engineer and soldier, and so on. What does the current definition tell us about ourselves as a culture?

> Gifted and talented children are those identified by professionally qualified persons who by virtue of outstanding abilities are capable of high performance. These are children who require differentiated educational programs and services beyond those normally provided by the regular program in order to realize their contribution to self and society.

> Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas:
>
> 1. General intellectual ability
> 2. Specific academic aptitude
> 3. Creative or productive thinking
> 4. Leadership ability
> 5. Visual and performing arts
> 6. Psychomotor ability (Marland, 1972, p. 10).

Measurement Problems

Such a definition is a noble gesture to broaden the idea of giftedness beyond verbal facility, but it cannot become operational without adequate measuring instruments, and we need more sophisticated theory and better instruments before such a definition is operational.

We now appear to be caught in a seam of history. We have emerged from six decades of a serious attempt to measure individual characteristics in an attempt to understand and predict that individual's future behavior and performance. This has worked reasonably well in the area of achievement and cognitive development. It has worked less well in areas such as creativity or leadership. These predictions of creative or leadership behavior depend, in a large measure, on the nature of the specific environment in which the individual is behaving, as well as on the nature of the individual.

In order to measure leadership and creativity we must note not only the characteristics of the individual, but also to catalog the nature

of the environment in which the observed behavior takes place. Thus, X individual may be a potential leader in environments 7, 13, 22, but not in 5, 8, or 9. This interactive approach lacks the decisive ring of saying "he is a born leader" but is probably more accurate (Stogdill, 1974; Arnold, 1977).

Cultural Difference

One of the special problems in charting the abilities of gifted and talented students involves identifying the special gifts of minority group children who have grown up under different cultural circumstances than those children assessed by the standard IQ measures.

There have been three general approaches to this problem. The first of these can be labeled as a statistical adjustment. Mercer (1977) has developed a technique known as SOMPA which stands for the System of Multicultural Pluralistic Assessments. This system makes statistical adjustments for the actual IQ score obtained by the student based upon whether the optimum conditions for assessing a person is present. Mercer refers to these conditions as follows:

1. Have had similar opportunities to learn the materials and acquire the skills covered in the test.
2. Have been similarly motivated by the significant other persons in lives to learn this material and to acquire these skills.
3. Have had similar experience with taking tests.
4. Have no emotional disturbances or anxieties interfering with test performance.
5. Have no sensory motor disabilities interfering with prior learning or with their ability to respond in this test situation.

Mercer believes that when these factors are held constant, then the pluralistic model assumes that the individual who has learned the most probably has the most learning potential. The use of this technique has been successful in identifying minority group children who otherwise would not have been located as gifted and talented.

A second major approach is to try to assess those characteristics with measuring instruments in those domains that the cultural subgroup has put particular stress upon. In this way, one can identify the special talents in different ethnic groups. Bernal (1974) suggests a test for young Chicano children based upon Piagetian concepts, with a Cartoon Conservation Scale developed by DeAvila and Havassy (1975).

Meeker (1978) reports the work of Evelyn Hahn of the Bureau of Indian Affairs in identifying gifted Navajo students. By using the Structure of Intellect tests that are heavily weighted to the figural rather than the semantic areas, they were able to find gifted Indian children. It was particularly interesting to note that the Navajo children were particularly high in scores of auditory memory, but scored low on classification skills in the figural dimension. The Navajo language is a spoken, sparse language with a minimum of words for classification. The language is learned largely through auditory sense. Thus, this type of identification also provides a basis for understanding cultural differences and of plotting some clear curriculum objectives for Navajo children.

Torrance (1976) reports two types of special tests designed to identify giftedness in black populations. These tests are "sounds and

images," and "thinking creatively with action and movement." In the "Sounds and Images" test, the child is required to describe images suggested by a series of sound effects. In that task, black children and white children seem to have an equally rich storehouse of imagery. In the case of thinking creatively with action and movement, Torrance found that black children will respond to problems with action and movement, while white children tended to respond verbally telling what they would do. In this regard, Torrance and his coworkers are using the specially developed talents of the subgroup to help identify the gifted and talented within that group.

The third major technique has been to use some combination of tests, rating scales, and peer and adult nominations. This approach is presented in a most systematic form by Baldwin (1978). Baldwin uses eleven different assessment items ranging from standard intelligence tests to peer nominations, and then develops a composite score for the individual from those scores. This allows her to find gifted and talented students from minority group settings without unduly penalizing the student for poor performance on any one of the eleven scales.

The process of identification of these gifted and talented students from minority groups has progressed much more rapidly than the development of clear and distinctive curriculum adjustments for them. Although some suggestions have been made (Gallagher and Kinney, 1974), the field still lacks definitive statements regarding important distinctive curriculum adaptations for these youngsters (Baldwin, 1978).

Creativity

The great interest in creativity was spawned by the theoretical work of Guilford (1950, 1967) and the imaginative applications of that work through Getzels and Jackson (1962), and Torrance (1965). This movement created a blizzard of measuring instruments of dubious validity and reliability. Such simple instruments, of course, did not measure creativity, which is a complex process that cannot be viewed apart from the subject and the environment. Such tests did seem to measure some characteristics of intellectual fluency and flexibility, which may be more cognitive style than a separate intellectual operation. They miss the essence of the complex process of creativity as noted in the study of the creative person (Barron, 1969).

School Adaptations

The unique experiences that gifted students should encounter in special education has generally been agreed upon (See Gallagher, 1975):

1. They should master the structure of the knowledge disciplines and understanding the basic principles at the heart of such subject matter. They should be learning systems of knowledge, instead of simple facts and associations.
2. They should be learning the heuristic skills of problem solving, creativity, the scientific method, etc., so that the gifted student will become more of an autonomous learner and not constrained by the limits of their individual teachers.

Content. During the early 1960's there was a brief but exciting marriage between scholars and educators to produce a systematic

reorganization of knowledge in mathematics, physical science, and the social sciences (Bruner; 1960, Goodlad, 1964). These programs emphasized the basic structure of the discipline, the importance of having the student behave as the physicist or historian, or whatever, and the introduction of complex ideas as early as possible in the school program. These are all goals that fit the needs of gifted children very well. This marriage disintegrated in the late 1960's when the Vietnam war and desegregation took over as major emphasis for schools and scholars. However, a new liaison awaits formation to aid the clear presentation of important ideas to gifted and talented students.

Examples of how such synthesis of important ideas can be done and, in fact, the viability of the approach, has been illustrated by two television series produced by the BBC: the first by Kenneth Clark on Civilisation (1970) and the second by Bronowski on the Ascent of Man (1973). Each of these series tried to take central ideas and major insights and build a set of illustrative examples, conceptual linkages and consequences around them. A few brief quotes from the Bronowski series will give examples of major ideas that are well within the grasp of gifted and talented from preadolescence onward.

> War, organized war, is not a human instinct. It is a highly planned and cooperative theft. And that form of theft began ten thousand years ago when the harvesters of wheat accumulated a surplus and the nomads rose out of the desert to rob them of what they themselves could not provide.

The different cultures have used fire for the same purposes: to keep warm, to drive off predators, and clear woodland, and to make simple transformations of everyday life, to cook, to dry and harden wood, to heat and split stones. But, of course, the great transformation that helped us make our civilisation goes deeper: it is the use of fire to disclose a wholly new class of materials, the metals. Easter Island is over a thousand miles from the nearest inhabited island....Distances like that cannot be navigated unless you have a model of the heavens and of star positions by which to find your way. People often ask about Easter Island, how did men come here? They came here by accident: that is not the question. The question is why could they not get off? And they could not get off because they did not have a sense of the movement of the stars by which to find their way.

The horse and the rider have many anatomical features in common. But it is the human creature who rides the horse, and not the other way about. There is no wiring inside the brain that makes us horse riders. Riding a horse is a comparatively

> recent invention, less than five thousand years old. And yet it has had an immense influence, for instance, on our social structure. Plasticity of human behaviour makes that possible. That is what characterises us in our social institutions, of course, and above all, in our books, because they are the permanent products of the total interest of the human mind.

Such ideas can be the base of an exciting curriculum, if scholars and teachers renew their joint efforts and interests.

Skills. The earlier noted adventures in search of creativity and the creative process has focused attention on the thinking process and generated some useful instructional programs and materials (Torrance and Myers, 1970; Feldhusen and Treffinger, 1977).

Learning Environment. The current and future administrative devices adopted in education for gifted students such as special schools, magnet schools, special classes, resource rooms, mentors, tutorial programs, etc., are all designed to create an environment that will enhance the two major educational objectives noted above.

The evaluation of such special educational programs for the gifted has been difficult without appropriate measuring instruments. The standard achievement tests leave much to be desired in this regard (Renzulli, 1976). Since the multiple choice achievement tests have to be constructed to allow most of the students to respond to the item, there is no room on the test for those kinds of knowledges that only the gifted child might learn or understand.

Consequently, despite the high scores that gifted students obtain on standard norm referenced achievement tests, one still may be overlooking their real capabilities. For example, standard achievement tests in history stress much factual information, and some reasoning ability. Such tests may discover whether the youngster has necessary information regarding the American Revolution or the Constitution. They are unlikely to demonstrate that the gifted child may understand revolution as a generic concept and be able to apply that knowledge to a wide variety of circumstances. Educators would not be able to grasp through the multiple choice testing of simple concepts in astronomy or physics, on science achievement tests, that the youngster has a grasp of Einstein's theory of relativity. It would be counter productive to place sophisticated items like this on a standard multiple choice achievement test, if one could write one, because the vast majority of students would miss them totally, and therefore, create test construction and norming problems.

Recommendations

If there is no interest in doing something special or unique for gifted students, there would be no need to think about better or different measuring instruments. If we were correct in our original assumption that crisis heightens our appreciation of gifted students and their needs, then we probably can be confident, looking at our immediate future, that the need for special programs and instrumentation will be there.

1. We need to discard standard instruments designed for average students and develop instruments for special

populations and unique educational objectives (a very special and unique type of criterion reference test is needed, not designed to measure the minimum competence, but designed to measure maximum competence.

2. We need a new set of instruments that will allow us to integrate knowledge of the individual, with the classification of common environmental settings and conditions. This would help us with proper identification of students for leadership and creativity programs or to find hidden talent in minority groups (Baldwin, Gear and Luceto, 1978).
3. The chronic absence of research and training money in the gifted field has led to a disastrous lack of interest by universities on this topic. The crass financial truths are that low enrollee training programs, such as gifted education, do not pay for themselves and have to have external support if the universities are to be involved.

Since most innovative ideas in education still come from universities, or the research community, some degree of incentive must be provided if we are to see dramatic innovation in these programs in the near future.

There is a lack of sufficient research funds and of any deliberate policy encouraging the development of new

instruments for special purposes. Instrument development is not considered an appropriate use of limited research dollars. Those interested in specialized test development often have to disguise their interests through a research project to get anything done at all.

4. One of the fundamental truths of political life is that research cannot compete politically with service for scarce funds. The service programs provide direct benefits to the constituents and create instant political rewards, whereas the impact of research can wait for several generations of politicians to pass by. It takes an extraordinarily far-sighted and unselfish politician to support research under such circumstances. The problem becomes, then, not one of decrying the fact that research cannot compete, but in creating a different set of environmental conditions whereby it can be supported.

   One of the solutions that has become more and more popular among scientists concerned with public support has been to propose a fixed percentage to be "set aside" from the service funds for research and development. This would allow for the adequate funding of research and development activities by allowing it to become part of the service request and, in this way, to become the political beneficiaries of the pressure for more service.

As Gallagher (1975) said:

> One alternative to current operations would link priority programs to some sliding scale related to general education expenditures. For example, educational research and development could be tied to educational expenditures and receive five percent of the total, whatever that total is. The more money spent on educational services, the more money would go to research, and at a percentage level shown to be effective in fields such as agriculture and health. This would eliminate the temptation for budget cutters looking for lost dollars to attack a program whose nature makes it more defenseless than programs with strong emotional support, such as programs for services to the handicapped (p. 26).

Other observers of the Federal scene have proposed similar schemes. Challoner (1974) has suggested the formation of a biomedical research trust fund that would be tied to the gross revenues of the health industry, or perhaps to a percentage of health insurance premiums. Krathwohl (1977) has suggested that a fixed percentage of the Federal education allocation should go to educational research and development. Unless there is some such system-wide strategy adopted that will allow long-range goals of great merit such as educating gifted students to be supported, or underwritten, or the discovery and development of new ideas in measurement, then we must continue to live with the less than optimum level of quality that now exists.

We seem to have the philosophy in education that new measuring instruments appear as if by magic, perhaps through a firm tap by a fairy godmother. Perhaps Federal agencies are afraid they will be attacked for trying to subtly influence the curriculum from a national standpoint. Whatever the reason, the gifted and talented area has suffered substantially by having to put on a suit of measurement clothes that often do not fit their needs, nor measure their intellectual breadth.

At any rate, the pitiful sum of money provided in the Federal budget for gifted and talented will obviously not do the job in either research, training, or instrument development. It may be that we will have to rely upon private sources such as foundations to have the statemanship and foresight to support or underwrite some of these new measurement and program innovation directions.

Science flies on the wings of its measuring instruments. Until we recognize that fundamental concept, and act upon it, we likely will still be limited in our imagination on what is possible in the future for the gifted student by the straitjacket of our own inadequate instruments.

A quote by the historian, Toynbee (1968) seems to sum up the prevailing point of view of those who support special programs for the gifted:

> The creator has withheld from Man the shark's teeth, the bird's wings, the elephant's trunk, and the hound's or horse's racing feet. The creative power planted in a minority of mankind has to do duty for

all the marvelous physical assets that are built into every specimen of Man's nonhuman fellow creatures. If society fails to make the most of this one human asset, or if, worse still, it perversely sets itself to stifle it, Man is throwing away his birthright of being the Lord of creation and is condemning himself to be, instead, the least effective species on the face of this planet.

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